DERIVING DELIVERY POINT CODES FOR HIGHRISE SECONDARY ADDRESSES

The Postal Service has identified the potential for significant savings and service improvements through the implementation of delivery point sequencing of highrise deliveries. With the implementation of the CASS 1998–1999 cycle, the Postal Service will require software to assign delivery point codes based on the secondary address value (apartment or suite number) instead of the primary address value in specific circumstances. The new rules for computing delivery point codes will only apply when an input address is matched to highrise records (record type "H") in the ZIP+4 file or DSF.

Currently, all assignments of delivery point codes are based on the contents of the primary address value. For example, "123 Main St Apt 1" and "123 Main St Apt 2" both produce delivery point code "23," arrived at by extracting the last two digits from the primary address value. By combining delivery point code "23" with the ZIP+4 code assigned, the Postal Service is able to automate the sortation of mail according to the primary address value. This enables us to sort a large percentage of mail volume into delivery sequence. However, it does not allow us to sort mail destined to individual apartment or suite numbers in a highrise building in delivery sequence. Since both addresses have the same delivery point code, mail would be presented to the carrier in random order for "Apt 1" and "Apt 2," requiring the carrier to sort the mail to the individual apartments manually prior to delivery.

In many situations, there is a substantial benefit to delivery operations if mail destined to apartment or suite numbers can be presented in delivery sequence based on the apartment or suite number. An example would be a situation in which a carrier is making door-to-door delivery within a highrise building. To sort mail for highrise buildings using the Postal Service's automated equipment will require that the delivery point code assignment be based on the secondary address value. Assigning the delivery point code based on the secondary address value for the addresses "123 Main St Apt 1" and "123 Main St Apt 2" would produce delivery point codes of "01" and "02," respectively. If each apartment has a unique delivery point code, mail can be sorted through automation into delivery sequence.

Assigning delivery point codes for secondary address values requires different delivery point coding rules than for primary address values due to the greater variety of addressing patterns found in secondary addresses. The following rules are to be used only when an input address is matched to an "H" record within the ZIP+4 File. Do not use these rules for matches made to any other record types. Matches made to other record types in the ZIP+4 File will continue to use the primary address value when computing the delivery point code, even when a secondary address value is present. Refer to the general information contained on the next page for additional guidelines to keep in mind while assigning delivery point codes for secondary address values.

General Information

Special Characters and Fractions in Secondary Address Values

With all of the following rules, if the input secondary address contains embedded special characters of dashes or periods, they must be ignored when calculating the delivery point code. For example, if calculating the delivery point code for secondary address "A2-5," use the same algorithm that is used for secondary address "A25."

Slashes (/) and embedded spaces are only allowed to exist in secondary address values within the ZIP+4 File as part of a fractional value. Any input secondary address that contains a fraction or matches to a ZIP+4 record that contains a fractional value should be treated as a fractional secondary address. Ignore any fractional components contained in the input secondary address when computing the delivery point code unless the fraction is the only value in the secondary address. See Rule 8 for secondary addresses consisting of only a fraction.

Examples:

Secondary Address Value	Secondary Range Matched	Delivery Point Code	Rule
5 1/2	1 - 10	05	3
2 1/3C	2 1/3A - 2 1/3D	02	3
A8 1/4	A6 1/4 - A12 1/4	18	4

Pattern Differences Between Input Secondary Address and ZIP+4 File

There can be situations in which the input secondary address pattern differs from the pattern for the secondary address found within the ZIP+4 File. For example, an input address may be shown as "Apt 5A" and matched to a secondary range of "1–10" in the ZIP+4 File. This would be correct since a single trailing alpha character is considered to fall within an all-numeric range. When an input address contains a single trailing alpha character and is matched to an all-numeric range, calculate the delivery point code using the input secondary address format.

Example:

Secondary Address Value	Secondary Range Matched	Delivery Point Code	Rule
5A	1 - 10	51	3

Another situation that can occur may necessitate swapping of alpha and numeric components of the input secondary address to match a corresponding pattern on the ZIP+4 File. For example, an input secondary address value of "A7" is considered a match to a secondary range of "1A–10A" by swapping the input alpha and the numeric values to create "7A." This is valid only if a similar pattern for the secondary address value exists in the ZIP+4 File; a leading alpha character may not be swapped to match to an all-numeric secondary range. When an input secondary address value requires swapping of the alpha and the numeric values to match to a corresponding pattern in the ZIP+4 File, use the swapped format to calculate the delivery point code. This is required regardless of whether the swapped value is retained for output in the address.

Examples:

Secondary Address Value	Swapped Format of Input Secondary Address Value	ZIP+4 File Secondary Range Matched	Delivery Point Code	Rule
A7	7A	1A - 10A	71	3
6B	B6	B1 - B10	26	4

Address as shown on mailpiece: 123 MAIN ST APT A7
CITY ST 12345-1234 (DPC 71)

Secondary Numbers Used as Primary Number Values

If a secondary numeric value is used as the primary number in an address, always calculate the delivery point assignment based on the secondary number value, regardless of how it is presented in the address. For example, assuming an input address of

1800 IDS Tower
Minneapolis MN 55402

a match would be made to:

80 S 8TH ST STE 1800
MINNEAPOLIS MN 55402-2123

The delivery point code for the input address must be calculated based on the value "1800," regardless of how the address is ultimately displayed on a mailpiece.

Default Matches to Highrise Records With Secondary Ranges

There are cases in the ZIP+4 File in which a single highrise record for a primary address with secondary ranges exists and there is no highrise-default record, i.e., a single-coded "H" record condition. For example:

ZIP	REC TYPE	PRIM LOW	PRIM HIGH	STREET NAME	SECO DESG	SECO LOW	SECO HIGH	ZIP+4
38134	S	5200	5298	SHELBORNE CIR				5610
38134	H	5206	5206	SHELBORNE CIR	APT	1	16	5660

In situations in which this condition exists, the single highrise record can serve as both the default record and the exact range record. If a match is made to the highrise record and the secondary address value does not fit within the secondary range shown, assign "99" as the delivery point code. The Postal Service preference is for the match to be made to the highrise record, but this is not an absolute requirement. For example, with an input address of, 5206 Shelborne Cir Apt 17, if add-on code "5660" is assigned, the delivery point code must be "99." If the match is not made to the highrise record and is made instead to the street record, assign the delivery point code based on the primary number.

RULE 1: NUMERIC SIMPLE RULE

This rule applies when the secondary address value only contains numeric values (0–9), excluding fractional values or special characters, and the numeric value in the hundred's place or the thousand's place equals zero. The last two digits of the secondary number become the delivery point code. See Rule 5 if the numeric value in either the hundred's or thousand's place is greater than 0.

Example:

Secondary Value	Delivery Point Code
1	01
2	02
98	98
99	99
7-2	72
4 1/2B	04

Secondary Value	Delivery Point Code
10001	01
10002	02
10098	98
100 99	99
10007.2	72
10004 2/3	04

RULE 2: ALPHABETIC RULE

This rule is used when the secondary address value contains only alphabetic characters, excluding fractional values or special characters. Compute the delivery point code using only the rightmost alphabetic character. Each character of the alphabet is assigned a unique delivery point code based on a progressive substitution starting at 73 and continuing through 98 (e.g., A = 73, B = 74, Z = 98, etc.).

Example:

Secondary Value	Delivery Point Code
A	73
B	74
C	75
W	95
Z	98

Secondary Value	Delivery Point Code
LA	73
AAB	74
A-C	75
W 1/2	95
MEZZ	98

RULE 3: ALPHANUMERIC RULE — TRAILING ALPHA

This rule applies to alphanumeric secondary addresses in which the last character is an alphabetic character within the range of A to Z. Form the delivery point code from the secondary address according to the following formula:

$$DPC = MOD ((X + (10 * Y)) / 100)$$

"X" equals the conversion value of the rightmost alphabetic character from the Alphanumeric Conversion Table and "Y" equals the rightmost, non-fractional numeric value. Within the formula, the term "MOD" means take the remainder value derived from the division process.

Another way to describe the formula is

1. Convert the trailing alphabetic character (X) to a numeric value using the following Alphanumeric Conversion Table.

2. Find the rightmost, non-fractional numeric digit (Y) and multiply it by 10.

3. Add the values derived in steps 1 and 2.

4. Divide the value from step 3 by 100. Take the remainder (MOD) and create the delivery point code.

Alphanumeric Conversion Table:

A = 1	F = 6	K = 21	P = 26	U = 41
B = 2	G = 7	L = 22	Q = 27	V = 42
C = 3	H = 8	M = 23	R = 28	W = 43
D = 4	I = 9	N = 24	S = 29	X = 44
E = 5	J = 0	O = 25	T = 30	Y = 45
				Z = 46

Examples: The notation "R" followed by a numeric is translated to "Remainder of."

Secondary Value	Step 1 X	Step 2 10 * Y	Step 3 Add Answers Step 1 + Step 2	Step 4 MOD (Step 3 Ans/ 100)	Delivery Point Code
1A	A = 1	10 * 1 = 10	1 + 10 = 11	11 / 100 = 0 R11	11
10D	D = 4	10 * 0 = 0	4 + 0 = 4	4 / 100 = 0 R4	04
99Q	Q = 27	10 * 9 = 90	27 + 90 = 117	117 / 100 = 1 R17	17
A4K	K = 21	10 * 4 = 40	21 + 40 = 61	61 / 100 = 0 R61	61
2-4M	M = 23	10 * 4 = 40	23 + 40 = 63	63 / 100 = 0 R63	63
A78Z	Z = 46	10 * 8 = 80	80 + 46 = 126	126 / 100 = 1 R26	26

RULE 4: ALPHANUMERIC RULE — TRAILING NUMERIC

This rule applies to alphanumeric secondary addresses with trailing numeric character(s). Form the delivery point code from the secondary address according to the following formula:

$$DPC = MOD (((X * 10) + Y)/ 100)$$

"X" equals the alphanumeric conversion value of the leftmost alphabetic character and "Y" equals the rightmost, non fractional numeric value. Within the formula, the term "MOD" means to take the remainder value derived from the division process.

Another way to describe the formula is

1. Convert the first alphabetic character (X) to a numeric value using the Alphanumeric Conversion Table (see Rule 3).

2. Multiply the value derived in step 1 by 10.

3. Add the rightmost, non-fractional numeric digit (Y) to the value derived in step 2.

4. Divide the value derived in step 3 by 100. Take the remainder (MOD) and create the delivery point code.

Examples: The notation "R" followed by a numeric is translated to "Remainder of."

Secondary Value	Step 1 X	Step 2 10 * X	Step 3 Add Step 2 + Y	Step 4 MOD (Step 3 Ans / 100)	Delivery Point Code
A1	A = 1	10 * 1 = 10	10 + 1 = 11	11 / 100 = 0 R11	11
B3	B = 2	10 * 2 = 20	20 + 3 = 23	23 / 100 = 0 R23	23
4G5	G = 7	10 * 7 = 70	70 + 5 = 75	75 / 100 = 0 R75	75
Q37	Q = 27	10 * 27 = 270	270 + 7 = 277	277 / 100 = 2 R77	77
D-33	D = 4	10 * 4 = 40	40 + 3 = 43	43 / 100 = 0 R43	43
3V-175	V = 42	10 * 42 = 420	420 + 5 = 425	425 / 100 = 4 R25	25
R2 1/4	R = 28	10 * 28 = 280	280 + 2 = 282	282 / 100 = 2 R82	82
1A.2	A = 1	10 * 1 = 10	10 + 2 = 12	12 / 100 = 0 R12	12
44C102	C = 3	10 * 3 = 30	30 + 2 = 32	32 / 100 = 0 R32	32
B1A9	B = 2	10 * 2 = 20	20 + 9 = 29	29 / 100 = 0 R29	29

RULE 5: NUMERIC COMPUTED RULE

This rule applies to numeric secondary addresses when the numeric value of the combination of hundreds and thousands digits is greater than zero. See Rule 1 if the value in both the hundred's or thousand's place equal 0. Compute the delivery point code from the secondary address according to the following formula:

$$DPC = 25 * (MOD (X / 4)) + MOD (Y / 25)$$

"X" equals the numeric value of the digits in the thousand and hundred places, and "Y" equals the numeric value of the digits in the tens and ones places. Within the formula, "MOD" means to take the remainder value derived in the division process.

Another way to describe the formula is

1. Extract the two numeric digits found in the thousand's and hundred's place (X) and divide those digits by 4. (Note: If there is no numeric digit found in the thousand's place, use only the numeric digit found in the hundred's place.)

2. Take the value of the remainder (MOD) from the division in step 1 and multiply that value by 25. (Note: The remainder from step 1 should always be either 0, 1, 2, or 3.)

3. Extract the numeric digits found in the ten's and one's place (Y). Divide that value by 25 and take the remainder (MOD). (Note: The remainder should always be a value between 0 and 24.)

4. Add the values derived in steps 2 and 3 to create the delivery point code. If the sum of the two values derived from steps 2 and 3 is less than 10, add a leading 0 to create a two-digit value.

Examples: The notation "R" followed by a numeric is translated to "Remainder of."

Secondary Value	Step 1 Value of Thou&Hund / 4	Step 2 Value from Step 1 * 25	Step 3 Value of Tens&Ones / 25	Step 4 Add Answers Step 2 + Step 3	Delivery Point Code
306	3 / 4 = 0 R3 = 3	3 * 25 = 75	06 / 25 = 0 R6 = 6	75 + 6 = 81	81
683	6 / 4 = 1 R2 = 2	2 * 25 = 50	83 / 25 = 3 R8 = 8	50 + 8 = 58	58
1001	10 / 4 = 2 R2 = 2	2 * 25 = 50	01 / 25 = 0 R1 = 1	50 + 1 = 51	51
8874	88 / 4 = 22 R0 = 0	0 * 25 = 0	74 / 25 = 2 R24 = 24	0 + 24 = 24	24
14-102	41 / 4 = 10 R1 = 1	1 * 25 = 25	02 / 25 = 0 R2 = 2	25 + 2 = 27	27
1234 1/2	12 / 4 = 3 R0 = 0	0 * 25 = 0	34 / 25 = 1 R9 = 9	0 + 9 = 9	09

RULE 6: ADDRESS MATCHED TO A ZIP+4 RECORD WITH BLANK SECONDARY RANGES

If an input address is matched to a highrise record with a secondary designator but no secondary ranges, the software must return delivery point code “99.”

The secondary designators that may exist without a secondary range include the following:

BSMT	LBBY	REAR
LOWR	FRNT	OFC
SIDE	PH	UPPR

Example:

ZIP+4 Data

ZIP	REC TYPE	CRID	STREET	PRIM LOW	PRIM HIGH	O/E	SECO DESG	SECO LOW	SECO HIGH	ZIP+4 LOW	ZIP+4 HIGH
48322	S	C001	MAIN AVE	101	199	O				2111	2111
48322	H	C001	MAIN AVE	123	123	O				2115	2115
48322	H	C001	MAIN AVE	123	123	O	OFC			2116	2116
48322	H	C001	MAIN AVE	123	123	O	APT	101	108	2117	2117
48322	H	C001	MAIN AVE	123	123	O	APT	201	208	2118	2118

Input address:

JAN DOE
123 MAIN AVE OFFICE
WEST BLOOMFIELD MI 48322

Output address:

JAN DOE
101 MAIN AVE OFC
WEST BLOOMFIELD MI 48322-2116 (DPC 99)

In this example, the input address contains the secondary designator “OFFICE,” which is matched to the third record displayed containing the secondary designator “OFC.” Since the record that is matched to has no secondary ranges shown, the delivery point code assigned must be “99.”

RULE 7: ADDRESS MATCHING TO A HIGHRISE DEFAULT RECORD

If a match is made to a default highrise record on the ZIP+4 File, the delivery point code assigned must be "99." A default highrise record is defined as an "H"-type record that has no secondary designator value and no secondary range values.

Example:

ZIP+4 Data

ZIP	REC TYPE	CRID	STREET	PRIM LOW	PRIM HIGH	SECO DESG	SECO LOW	SECO HIGH	ZIP+4 LOW	ZIP+4 HIGH
48321	S	C001	MAIN ST	101	199				1111	1111
48321	H	C001	MAIN ST	101	101				1116	1116
48321	H	C001	MAIN ST	101	101	APT	101	108	1117	1117
48321	H	C001	MAIN ST	101	101	APT	201	208	1118	1118

Input address:

JANE DOE
101 MAIN ST APT 405
AUBURN HILLS MI 48321

Output address:

JANE DOE
101 MAIN ST APT 405
AUBURN HILLS MI 48321-1116 (DPC 99)

In this example, since the input secondary value of "405" cannot be matched to any of the secondary ranges available, the match is made to the second record displayed, which is the highrise default record. This requires the assignment of "99" for the delivery point.

RULE 8: FRACTIONAL ONLY SECONDARY ADDRESSES

If the input secondary address is a fraction without any other leading alphabetic or numeric value present, assign delivery point code “00.” A single trailing alpha following a fractional value is considered to be part of the fraction.

Examples:

Secondary Address Value	Delivery Point Code
1/2	00
2/3	00
3/4A	00